Are the Officers in Blue seeing Red Over Green?

How will the Hybrid vehicle impact Police Patrol?

By Sheryl Boykins

As the cost of gasoline continues to surge around the world, the price to fuel our public safety vehicle fleets is an intensifying concern. Even as the police grapple with cost overruns, the general public seems to be reluctant to modify their driving habits, even to consider purchasing something less thirsty than your average SUV. Perhaps reflecting a hope of the past, we commute in single-occupant vehicles, decline to use mass transit and opt to drive without considering the long-term implications of our choices. Given that America has not opened a new oil refinery for three decades, and has placed a moratorium on offshore drilling, it is no real surprise the average cost of oil may soon climb to $80 a barrel. This translates to almost five dollars a gallon to fuel our cars; our police cars are not exempt from this problem, except for the fact they cannot merely be parked until the price spike subsides.

City Managers, budget analysts, and police executives are scratching their heads as the cost of gas continues to eat into their total operating budgets. What to do, they wonder. Smaller cars? Foot patrol? Forced restrictions on non-emergency driving? Perhaps one of the most compelling options may be to transform police fleets to alternative fuel, even alternative vehicles, as a means to cope with the cost of gas while maintaining safety on our streets.

The dilemma, police purists say, rests in the worry about energy-efficient cars not holding up to the rigors of police work. How would smaller police cruisers keep up with criminals using today's high-performance cars as getaway vehicles? Will police officers be able to effectively do their jobs while patrolling and jumping in-and-out of cars that lack an adequate work area to lug around pounds of police equipment? Old school police officers express equal concern that new innovations in energy efficiency equate to a loss in longevity and ruggedness; historically a hallmark in selecting police cruisers.

Historical Perspective

Historically, law enforcement has utilized large, big-block eight-cylinder-type vehicles as their patrol vehicle of preference. Added to the engine size are the super heavy-duty suspensions, heavy-duty shocks, special sway bars, extra body welds and reinforcements. In addition, there is the emergency equipment, heavy-duty brakes and tires and specialized equipment unique to the profession (computer, radio, gun racks, and cages). Considering the driving patterns of law enforcement; constant starts and stops, continual fluctuation between high and low engine RPM, prolong idling, and operating emergency equipment, and you have a recipe for increased gas consumption. Police drive what they do for pursuit, visual identification, carrying capability, even defensive purposes.

Law enforcement is as American as apple pie, as is the image of the police squad car. Cops traditionally want size, power, speed, comfort, safety, and the ability to be seen. Conversely, the agency's financial official seeks cars with economy, ease of maintenance and nominal budget impact in mind. "The bigger, the better, the faster, the greater" has

been the mantra of the American public when it comes to describing their police cruiser. They have visual and other sensory expectations when the call for the police to respond occurs. They expect an American made, four wheel drive, four-door vehicle, with an eight cylinder, fast looking, big-bodied 300 (+) horse-powered vehicle to respond. It's the American way!!! Police respond to extremely dangerous scenarios: imagine officers cowering behind a Prius during the infamous North Hollywood bank robbery shootout in 2003.

As with most new technologies, there is a period of assessment to determine organizational fit. In this instance, agencies could look at differences between the classic American patrol vehicle and those used elsewhere in the world. Consider our European counterparts in public safety. Their vehicles are often quite small, and the transition to a compact hybrid would be almost seamless. But it would be like comparing apples to oranges. Many of the largest oldest European cities have streets and highways 6-12 feet narrower than those commonly found in America. In addition, bicyclists and motorbikes are a norm in many European countries, and drivers can often park on both sides of the cobblestone streets, rendering large cars inefficient, discouraged, and rejected.

Enter the Hybrid vehicle. The Hybrid as described by MPH Magazine, is any vehicle that uses a combination of petrol and electricity for motive power, so as to increase efficiency and thereby reduce emissions. From its inception, this vehicle has been marketed as economical; translation: small, ill equipped, slow, and oddly shaped. This vehicle was imported and was manufactured as a gas-saving alternative to the muscle car. The overt advantage is potential cost savings and the image of being environmentally responsible. Those who adopt a hybrid fleet will also be viewed as

progressive and modern by many in their constituency. This can be important in recruiting the more intelligent officer of the future drawn by technology and the high pay to education ratio. It does not address, however, the core issues of hybrid suitability for general patrol use.

The Issues

There are many factors and concerns a law enforcement administrator must consider before selecting a Hybrid as its patrol vehicle. We can start with two questions:

- Can Hybrids meet the demands of the profession? Hybrids must be able to address law enforcement's need for speed, size, and power. Patrol cars are often run 24 hours a day, seven days a week. Patrols have to be carried out, emergencies need to be responded to, and vehicles need to be kept continually running in order to power all on-board equipment.
- Is the Hybrid built to last under stressful-emergency conditions? The current models of consumer purchased Hybrids are not outfitted with emergency apparatus. The current police issued cruiser is outfitted with a "police package", and is the platform for a multitude of accessory equipment. There is emergency lighting equipment, radios, over-sized alternators and battery, cages and armory attachments, as well as space and power considerations any auto manufacturer must address before marketing a vehicle to American police agencies.

When you consider driving conditions, constant starts and stops, constant fluctuation between high and low engine RPM, and prolong idling, you have a recipe for

increased gas consumption and added weight. These issues will impact the usability of the current models of Hybrid, thus rendering them ineffective for police patrol.

In California, there are several Assembly Bills being considered to curb, modify and in some cases eliminate high-speed pursuits. If these bills are passed into law, the need for high-end, large gas guzzling vehicles may be severely reduced. If legislation governs pursuits to the point that they become nearly nonexistent, then agencies will need to look at what type of vehicle to stock their fleets, and what type of patrol service they will continue to provide. The fast high-energy out-put vehicle may become a victim of public opinion and be replaced by efficiency.

With gas prices reaching the $4.00 per gallon mark, the increase in fuel prices has had a profound impact on city, county and vehicle fleet budgets forcing many financial analysts to look for alternatives. Economists, city managers and budget analysts are looking to alternative vehicles or fuel options for their city, agency, and business vehicle fleets. If vehicle fuel prices continue to climb and out-pace government budgets, agencies may be forced to choose between a reduction in services or paying mounting fuel costs. Until now, government involvement into how law enforcement budgeted its finances has been limited to providing capital and allowing the agency to disperse it. Government involvement may change, and increased funding could be distributed to agencies that actively participate in fuel spending reduction efforts such as the use of alternate fuels or hybrid vehicles. This may become a budget-balancing subject for many government and city leaders.

Hybrids are too new to the market to have an established shelf life or track record for longevity. The true lifespan is unknown because the current models have not been

tested in areas such as resale or the after-warranty market. (Cars.com/2006 Hybrids). There are no major issues currently with the average consumer and the Hybrid, but a Hybrid built for everyday law enforcement use has not been tested.

The Hybrid has been tested as a full service police vehicle at the Northern Illinois University (NIU) campus, and is believed to be the first police department to fully adopt this technology. In a NIU public affairs press release, the Police Chief Don Grady stated the Toyota Prius is more than enough car to patrol the 1.2-square mile campus. The Chief said that this vehicle was more than adequate for campus patrol in terms of size, and weight capacity, but also stated it may not be the ideal car for every police application, although an excellent fit for the University. (http://www.niu.edu/PubAffairs/RELEASES/2004/june/hybrid.shtml) An issue that has been tested is the battery life of the Hybrid. In the Toyota Prius, the most commonly purchased Hybrid, it costs $3,600 to replace a battery. The battery needs to be replaced every three-four years (balance this by including the offset cost for lower fuel consumption so the reader can see the true cost of operations; then segue to the next section- thanks).

The Pros and Cons

Why should law enforcement look toward these oddly-shaped alternative vehicles as the premier patrol vehicle? They use less oil and require fewer tune-ups. This will reduce their downtime and extend their availability to be in use. They are considered "clean green, and environmentally friendly." Many environmentalists agree that burning fuel and the increase in emissions have eroded the ozone and have had a negative impact

on air quality (Washington State, Department of Ecology). The positive public relations benefit that an agency would receive if they incorporated clean efficient vehicles into their fleet would be enormous. Ecologists, families, schools, members of the medical profession, and those with respiratory issues would sing their praises.

According to Doctor Phil Landrigam, Professor of Pediatrics at Mount Sinai School of Medicine, outdoor air quality is a major source of lung irritant. The effects of air pollution from auto and industry emissions take a harder toll on children than adults. (CHEC Report 9/2004) During a side-by-side comparison of the 2005 Toyota Prius, and the 2005 Ford Crown Victoria, the Prius scored the best rating of all commercial vehicles when rating annual greenhouse gas emission with a rating of 3.4 tons. The Ford Crown Victoria scored much lower with a rating of 10.1 tons. (U.S. Department of Energy, GREET Model, Argonne National Laboratory)

Fuel savings will have a positive impact if alternative vehicles are adopted. The current miles per gallon (mpg) on a Toyota Prius are 45-60, compared to the 2005 Ford Crown Victoria (the most popular police vehicle) at 18-22 mpg. This translates to 300 percent more fuel currently consumed by agencies operating the Crown Vic. There are also federal tax deductions offered up to $3,000 on the purchase of Hybrid vehicles.

The case against purchasing the Hybrids have are just as engaging. Cost is the major factor for not purchasing this type of vehicle. Although the initial cost to purchase the vehicle may be less (2005 Ford Crown Victoria (stock) $28,000 vs. 2005 Toyota Prius @ $27,000) other cost factors must be considered. First might be the cost related to training of fleet maintenance staff. The usage of alternative fuel vehicles will require the alteration and modernization of both maintenance staff knowledge of such vehicles and

the physical plant where maintenance is to be conducted. The City of Hayward, CA corporation yard is run in much the same fashion as Southwest Airlines. They only purchase one type of vehicle for the entire fleet to streamline repair and maintenance. Parts are interchangeable, and the mechanics are experts in that single vehicle. To Change from this format must be done in a transitional manner, in that there will be a prolonged period in which both traditional and Hybrid vehicles will be in service. The next major hurdle is the presence of high voltage batteries in hybrid police cars. Emergency personnel will need additional training at accident scenes, both for civilian cars and their own patrol vehicles. Electrocution and chemical burns will comprise the bulk of emergency first-aid responder injury. Alternative fueled vehicles that use compressed gas which burns invisible is also a training consideration. Passengers and emergency personnel must recognize this type of fueled vehicle at the scene of an accident and know what precautions to take. These types of training and transition may be cost prohibitive. According to whom? The private companies using hybrid vehicles don't seem to have this intensity of problems...

The weight of law enforcement equipment coupled with the weight of the officers would have an impact on the overall handling and response of a typical Hybrid vehicle. As a general rule, most law enforcement officers are larger than the average Hybrid car owner, and the addition of uniforms and personally worn equipment on their duty belts require more interior vehicle space (it might be more defensible to say the average police officer carries xx pounds of equipment, and their uniform and belt stuff adds significantly to their weight and girth- saying we are bigger than hybrid owners may not be provable). According to the 2004 Toyota Prius owners' handbook, the maximum payload is 440

pounds. Many officers weigh 200+, and if they are transporting another person add 160+/- pounds and equipment: 25 pound duty-belt, extra ammunition, a box of flares, flashlight, crime scene equipment, and the computer set-up, and you have exceeded the maximum payload. There are two obvious choices for change: 1) Increase the gross vehicle weight of the vehicle to accommodate the weight needed for the job. 2) Decrease the amount of weight employee's carry, to stay within the limits of the vehicle. Both options are costly.

The issue of employee acceptance will surface. The thrill of driving fast, driving hard, and driving something with power will be a difficult challenge to overcome (any chief or city manager reading the last sentence will immediately want to transition to hybrids...). The trade-off will need to take place somewhere in the "perks" offered. The Hybrid vehicles will need to offer something to replace speed. Many vehicles will be equipped with new technology options such as GPS tracking systems that could be used to locate vehicles that have fled from law enforcement. Engine disabling systems are on the rise and may be used to offset the need to aggressively and immediately pursue an actively evading vehicle. It is a perk that officers can embrace and that technology has significantly improved upon. Think of other possible offsets- salary and benefits don't go down because the cost to pay for gas doesn't eat up a city's budget?

The issues that are costly but do not translate into dollars must be addressed Sheryl- this sentence doesn't make sense as written; go ahead and clarify. They can have an impact on the agency that is far worst than exceeding an annual budget. In general, larger vehicles provide more protection to the occupants than smaller vehicles, and although signaling systems, and alert devices are making headway in the automotive

industry, POA Unions would be very vocal about safety (or lack of) if police fleets are comprised primarily of smaller vehicles. The Unions could collectively launch a campaign against smaller vehicles all in the name of safety, and will provide examples of risk factor associated with smaller vehicles (crash safety test, load capacity, equipment availability).

The core issue with Hybrid vehicles is their reliability under stress conditions. According to the web site www.crashtest.com. , a comparison of survivability of a 2005 Ford Crown Victoria with that of a 2005 Toyota Prius was made. Both vehicles preformed well in the frontal impact crash at 35 mph. The Ford was far superior at speeds above 35 mph and in the rollover resistance rating. The Ford had better results in the side crash ratings representing an intersection-type crash with a 3100-pound object moving at 38 mph. There was not enough information available to say with absolute certainty that the Hybrid could sustain the rigors of police stress driving. Everyone agrees that safety is paramount.

Conclusion:

OK, tie this back to your two questions asked at the start- you have already said in a few spots they aren't suited; you might want to throw a bone to say they could be used for admin, investigations and non-critical uses (which is true) noting any cost issues as you have done. I look forward to the finished product. Thanks, Bob Harrison